

VII. COMPLIANCE AND ENFORCEMENT HISTORY

Background

To date, EPA has focused much of its attention on measuring compliance with specific environmental statutes. This approach allows the Agency to track compliance with the Clean Air Act, the Resource Conservation and Recovery Act, the Clean Water Act, and other environmental statutes. Within the last several years, the Agency has begun to supplement single-media compliance indicators with facility-specific, multimedia indicators of compliance. In doing so, EPA is in a better position to track compliance with all statutes at the facility level, and within specific industrial sectors.

A major step in building the capacity to compile multimedia data for industrial sectors was the creation of EPA's Integrated Data for Enforcement Analysis (IDEA) system. IDEA has the capacity to "read into" the Agency's single-media databases, extract compliance records, and match the records to individual facilities. The IDEA system can match Air, Water, Waste, Toxics/Pesticides/EPCRA, TRI, and Enforcement Docket records for a given facility, and generate a list of historical permit, inspection, and enforcement activity. IDEA also has the capability to analyze data by geographic area and corporate holder. As the capacity to generate multimedia compliance data improves, EPA will make available more in-depth compliance and enforcement information. Additionally, sector-specific measures of success for compliance assistance efforts are under development.

Compliance and Enforcement Profile Description

Using inspection, violation and enforcement data from the IDEA system, this section provides information regarding the historical compliance and enforcement activity of this sector. In order to mirror the facility universe reported in the Toxic Chemical Profile, the data reported within this section consists of records only from the TRI reporting universe. With this decision, the selection criteria are consistent across sectors with certain exceptions. For the sectors that do not normally report to the TRI program, data have been provided from EPA's Facility Indexing System (FINDS) which tracks facilities in all media databases. Please note, in this section, EPA does not attempt to define the actual number of facilities that fall within each sector. Instead, the section portrays the records of a subset of facilities within the sector that are well defined within EPA databases.

As a check on the relative size of the full sector universe, most notebooks contain an estimated number of facilities within the sector according to the Bureau of Census (See Section II). With sectors dominated by small businesses, such as metal finishers and printers, the reporting universe within the EPA databases may be small in comparison to Census data. However, the group selected for inclusion in this data analysis section should be consistent with this sector's general make-up.

Following this introduction is a list defining each data column presented within this section. These values represent a retrospective summary of inspections or enforcement actions, and solely reflect EPA, state and local compliance assurance activity that have been entered into EPA databases. To identify any changes in trends, the EPA ran two data queries, one for the past five calendar years (August 10, 1990 to August 9, 1995) and the other for the most recent twelve-month period (August 10, 1994 to August 9, 1995). The five-year analysis gives an average level of activity for that period for comparison to the more recent activity.

Because most inspections focus on single-media requirements, the data queries presented in this section are taken from single media databases. These databases do not provide data on whether inspections are state/local or EPA-led. However, the table breaking down the universe of violations does give the reader a general measurement of the EPA's and states' efforts within each media program. The presented data illustrate the variations across regions for certain sectors.^f This variation may be attributable to state/local data entry variations, specific geographic concentrations, proximity to population centers, sensitive ecosystems, highly toxic chemicals used in production, or historical noncompliance. Hence, the exhibited data do not rank regional performance or necessarily reflect which regions may have the most compliance problems.

Compliance and Enforcement Data Definitions

General Definitions

Facility Indexing System (FINDS) -- this system assigns a common facility number to EPA single-media permit records. The FINDS

^g EPA Regions include the following states: I (CT, MA, ME, RI, NH, VT); II (NJ, NY, PR, VI); III (DC, DE, MD, PA, VA, WV); IV (AL, FL, GA, KY, MS, NC, SC, TN); V (IL, IN, MI, MN, OH, WI); VI (AR, LA, NM, OK, TX); VII (IA, KS, MO, NE); VIII (CO, MT, ND, SD, UT, WY); IX (AZ, CA, HI, NV, Pacific Trust Territories); X (AK, ID, OR, WA).

identification number allows EPA to compile and review all permit, compliance, enforcement and pollutant release data for any given regulated facility.

Integrated Data for Enforcement Analysis (IDEA) -- is a data integration system that can retrieve information from the major EPA program office databases. IDEA uses the FINDS identification number to "glue together" separate data records from EPA's databases. This is done to create a "master list" of data records for any given facility. Some of the data systems accessible through IDEA are: AIRS (Air Facility Indexing and Retrieval System, Office of Air and Radiation), PCS (Permit Compliance System, Office of Water), RCRIS (Resource Conservation and Recovery Information System, Office of Solid Waste), NCDB (National Compliance Data Base, Office of Prevention, Pesticides, and Toxic Substances), CERCLIS (Comprehensive Environmental and Liability Information System, Superfund), and TRIS (Toxic Release Inventory System). IDEA also contains information from outside sources such as Dun and Bradstreet and the Occupational Safety and Health Administration (OSHA). Most data queries displayed in notebook sections IV and VII were conducted using IDEA.

Data Table Column Heading Definitions

Facilities in Search -- are based on the universe of TRI reporters within the listed SIC code range. For industries not covered under TRI reporting requirements, the notebook uses the FINDS universe for executing data queries. The SIC code range selected for each search is defined by each notebook's selected SIC code coverage described in Section II.

Facilities Inspected -- indicates the level of EPA and state agency inspections for the facilities in this data search. These values show what percentage of the facility universe is inspected in a 12 or 60 month period.

Number of Inspections -- measures the total number of inspections conducted in this sector. An inspection event is counted each time it is entered into a single media database.

Average Time Between Inspections -- provides an average length of time, expressed in months, that a compliance inspection occurs at a facility within the defined universe.

Facilities with One or More Enforcement Actions -- expresses the number of facilities that were party to at least one enforcement action

within the defined time period. This category is broken down further into federal and state actions. Data are obtained for administrative, civil/judicial, and criminal enforcement actions. Administrative actions include Notices of Violation (NOVs). A facility with multiple enforcement actions is only counted once in this column (facility with 3 enforcement actions counts as one). All percentages that appear are referenced to the number of facilities inspected.

Total Enforcement Actions -- describes the total number of enforcement actions identified for an industrial sector across all environmental statutes. A facility with multiple enforcement actions is counted multiple times (a facility with 3 enforcement actions counts as 3).

State Lead Actions -- shows what percentage of the total enforcement actions are taken by state and local environmental agencies. Varying levels of use by states of EPA data systems may limit the volume of actions accorded state enforcement activity. Some states extensively report enforcement activities into EPA data systems, while other states may use their own data systems.

Federal Lead Actions -- shows what percentage of the total enforcement actions are taken by the United States Environmental Protection Agency. This value includes referrals from state agencies. Many of these actions result from coordinated or joint state/federal efforts.

Enforcement to Inspection Rate -- expresses how often enforcement actions result from inspections. This value is a ratio of enforcement actions to inspections, and is presented for comparative purposes only. This measure is a rough indicator of the relationship between inspections and enforcement. This measure simply indicates historically how many enforcement actions can be attributed to inspection activity. Reported inspections and enforcement actions under the Clean Water Act (CWA), the Clean Air Act (CAA) and the Resource Conservation and Recovery Act (RCRA) are included in this ratio. Inspections and actions from the TSCA/FIFRA/EPCRA database are not factored into this ratio because most of the actions taken under these programs are not the result of facility inspections. This ratio does not account for enforcement actions arising from non-inspection compliance monitoring activities (e.g., self-reported water discharges) that can result in enforcement action within the CAA, CWA and RCRA.

Facilities with One or More Violations Identified -- indicates the percentage of inspected facilities having a violation identified in one of the

following data categories: In Violation or Significant Violation Status (CAA); Reportable Noncompliance, Current Year Noncompliance, Significant Noncompliance (CWA); Noncompliance and Significant Noncompliance (FIFRA, TSCA, and EPCRA); Unresolved Violation and Unresolved High Priority Violation (RCRA). The values presented for this column reflect the extent of noncompliance within the measured time frame, but do not distinguish between the severity of the noncompliance. Percentages within this column can exceed 100 percent because facilities can be in violation status without being inspected. Violation status may be a precursor to an enforcement action, but does not necessarily indicate that an enforcement action will occur.

Media Breakdown of Enforcement Actions and Inspections -- four columns identify the proportion of total inspections and enforcement actions within EPA Air, Water, Waste, and TSCA/FIFRA/EPCRA databases. Each column is a percentage of either the "Total Inspections," or the "Total Actions" column.

VII.A. Pulp and Paper Industry Compliance History

Exhibit 31 provides an overview of the reported compliance and enforcement data for the pulp and paper industry over the past five years (August 1990 to August 1995). These data are also broken out by EPA Region thereby permitting geographical comparisons. A few points evident from the data are listed below.

- The number of different pulp and paper facilities inspected was slightly more than 86 percent of those identified in the IDEA search. Also, these facilities were inspected on average every five months.
- The proportion of enforcement actions to inspections was relatively low at 13 percent.
- Those facilities with one or more enforcement actions had, on average, over the five year period, over four enforcement actions brought against them.

| Exhibit 31: Five-Year Enforcement and Compliance Summary for Pulp and Paper Industry | | | | | | | | | |
|--|----------------------|----------------------|-----------------------|------------------------------------|---|---------------------------|----------------------------|------------------------------|--------------------------------|
| A | B | C | D | E | F | G | H | I | J |
| Region | Facilities in Search | Facilities Inspected | Number of Inspections | Average Months Between Inspections | Facilities with 1 or More Enforcement Actions | Total Enforcement Actions | Percent State Lead Actions | Percent Federal Lead Actions | Enforcement to Inspection Rate |
| I | 41 | 39 | 499 | 5 | 20 | 75 | 59 | 41 | 0.15 |
| II | 18 | 16 | 222 | 5 | 6 | 12 | 67 | 33 | 0.05 |
| III | 28 | 24 | 370 | 5 | 11 | 54 | 89 | 11 | 0.15 |
| IV | 69 | 60 | 1346 | 3 | 21 | 192 | 88 | 13 | 0.14 |
| V | 85 | 68 | 605 | 8 | 21 | 39 | 82 | 18 | 0.06 |
| VI | 24 | 20 | 266 | 5 | 11 | 26 | 77 | 23 | 0.10 |
| VII | 2 | 2 | 8 | 15 | 1 | 2 | 100 | 0 | 0.25 |
| VIII | 2 | 2 | 20 | 6 | 1 | 4 | 0 | 100 | 0.20 |
| IX | 11 | 8 | 75 | 9 | 4 | 5 | 20 | 80 | 0.07 |
| X | 26 | 26 | 355 | 4 | 19 | 93 | 71 | 29 | 0.26 |
| TOTAL | 306 | 265 | 3766 | 5 | 115 | 502 | 78 | 22 | 0.13 |

VII.B. Comparison of Enforcement Activity Between Selected Industries

Exhibits 32 and 33 allow the compliance history of the pulp and paper sector to be compared to the other industries covered by the industry sector notebooks. Comparisons between Exhibits 32 and 33 permit the identification of trends in compliance and enforcement records of the industry by comparing data covering the last five years to that of the past year. Some points evident from the data are listed below.

- Of those sectors listed, the pulp and paper industry has been one of the most frequently inspected industries over the past five years based upon its low number of months between inspections.
- State lead actions have dominated the total number of enforcement actions taken against the pulp and paper industry.
- Over the past five years, the pulp and paper and the inorganic chemicals sector have had equal rates of enforcement actions per inspection. These rates are the median value for those industry sectors listed.

Exhibits 34 and 35 provide a more in-depth comparison between the pulp and paper industry and other sectors by breaking out the compliance and enforcement data by environmental statute. As in the previous Exhibits (Exhibits 32 and 33), the data cover the last five years (Exhibit 34) and the last one year (Exhibit 35) to facilitate the identification of recent trends. Two points evident from the data are listed below.

- The number of inspections carried out under the Clean Air Act and the Clean Water Act over the past five years account for close to eighty percent of total enforcement actions within the sample. This figure has increased to ninety percent over the past year.
- The number of enforcement actions taken under the CAA as a percent of the total number of enforcement actions, has increased in the past year compared to the average of the past five years. Over this same time period, the percentage of total enforcement actions under RCRA has decreased.

| Exhibit 32: Five-Year Enforcement and Compliance Summary for Selected Industries | | | | | | | | | |
|---|-----------------------------|-----------------------------|------------------------------|---|--|----------------------------------|-----------------------------------|-------------------------------------|---------------------------------------|
| A | B | C | D | E | F | G | H | I | J |
| Industry Sector | Facilities in Search | Facilities Inspected | Number of Inspections | Average Months Between Inspections | Facilities with 1 or More Enforcement Actions | Total Enforcement Actions | Percent State Lead Actions | Percent Federal Lead Actions | Enforcement to Inspection Rate |
| Pulp and Paper | 306 | 265 | 3,766 | 5 | 115 | 502 | 78% | 22% | 0.13 |
| Printing | 4,106 | 1,035 | 4,723 | 52 | 176 | 514 | 85% | 15% | 0.11 |
| Inorganic Chemicals | 548 | 298 | 3,034 | 11 | 99 | 402 | 76% | 24% | 0.13 |
| Organic Chemicals | 412 | 316 | 3,864 | 6 | 152 | 726 | 66% | 34% | 0.19 |
| Petroleum Refining | 156 | 145 | 3,257 | 3 | 110 | 797 | 66% | 34% | 0.25 |
| Iron and Steel | 374 | 275 | 3,555 | 6 | 115 | 499 | 72% | 28% | 0.14 |
| Dry Cleaning | 933 | 245 | 633 | 88 | 29 | 103 | 99% | 1% | 0.16 |
| Metal Mining | 873 | 339 | 1,519 | 34 | 67 | 155 | 47% | 53% | 0.10 |
| Non-Metallic Mineral Mining | 1,143 | 631 | 3,422 | 20 | 84 | 192 | 76% | 24% | 0.06 |
| Lumber and Wood | 464 | 301 | 1,891 | 15 | 78 | 232 | 79% | 21% | 0.12 |
| Furniture | 293 | 213 | 1,534 | 11 | 34 | 91 | 91% | 9% | 0.06 |
| Rubber and Plastic | 1,665 | 739 | 3,386 | 30 | 146 | 391 | 78% | 22% | 0.12 |
| Stone, Clay, and Glass | 468 | 268 | 2,475 | 11 | 73 | 301 | 70% | 30% | 0.12 |
| Fabricated Metal | 2,346 | 1,340 | 5,509 | 26 | 280 | 840 | 80% | 20% | 0.15 |
| Nonferrous Metal | 844 | 474 | 3,097 | 16 | 145 | 470 | 76% | 24% | 0.15 |
| Electronics | 405 | 222 | 777 | 31 | 68 | 212 | 79% | 21% | 0.27 |
| Automobiles | 598 | 390 | 2,216 | 16 | 81 | 240 | 80% | 20% | 0.11 |

| Exhibit 33: One-Year Inspection and Enforcement Summary for Selected Industries | | | | | | | | | |
|--|----------------------|----------------------|-----------------------|--------------------------------------|----------|---|----------|---------------------------|--------------------------------|
| A | B | C | D | E | | F | | G | H |
| Industry Sector | Facilities in Search | Facilities Inspected | Number of Inspections | Facilities with 1 or More Violations | | Facilities with 1 or more Enforcement Actions | | Total Enforcement Actions | Enforcement to Inspection Rate |
| | | | | Number | Percent* | Number | Percent* | | |
| Pulp and Paper | 306 | 189 | 576 | 162 | 86% | 28 | 15% | 88 | 0.15 |
| Printing | 4,106 | 397 | 676 | 251 | 63% | 25 | 6% | 72 | 0.11 |
| Inorganic Chemicals | 548 | 158 | 427 | 167 | 106% | 19 | 12% | 49 | 0.12 |
| Organic Chemicals | 412 | 195 | 545 | 197 | 101% | 39 | 20% | 118 | 0.22 |
| Petroleum Refining | 156 | 109 | 437 | 109 | 100% | 39 | 36% | 114 | 0.26 |
| Iron and Steel | 374 | 167 | 488 | 165 | 99% | 20 | 12% | 46 | 0.09 |
| Dry Cleaning | 933 | 80 | 111 | 21 | 26% | 5 | 6% | 11 | 0.10 |
| Metal Mining | 873 | 114 | 194 | 82 | 72% | 16 | 14% | 24 | 0.13 |
| Non-metallic Mineral Mining | 1,143 | 253 | 425 | 75 | 30% | 28 | 11% | 54 | 0.13 |
| Lumber and Wood | 464 | 142 | 268 | 109 | 77% | 18 | 13% | 42 | 0.58 |
| Furniture | 293 | 160 | 113 | 66 | 41% | 3 | 2% | 5 | 0.55 |
| Rubber and Plastic | 1,665 | 271 | 435 | 289 | 107% | 19 | 7% | 59 | 0.14 |
| Stone, Clay, and Glass | 468 | 146 | 330 | 116 | 79% | 20 | 14% | 66 | 0.20 |
| Nonferrous Metals | 844 | 202 | 402 | 282 | 140% | 22 | 11% | 72 | 0.18 |
| Fabricated Metal | 2,346 | 477 | 746 | 525 | 110% | 46 | 10% | 114 | 0.15 |
| Electronics | 405 | 60 | 87 | 80 | 133% | 8 | 13% | 21 | 0.24 |
| Automobiles | 598 | 169 | 284 | 162 | 96% | 14 | 8% | 28 | 0.10 |
| * Percentages in Columns E and F are based on the number of facilities inspected (Column C). Percentages can exceed 100% because violations can occur without a facility inspection. | | | | | | | | | |

* Percentages in Columns E and F are based on the number of facilities inspected (Column C). Percentages can exceed 100% because violations can occur without a facility inspection.

| Exhibit 34: Five-Year Inspection and Enforcement Summary by Statute for Selected Industries | | | | | | | | | | | | |
|--|-----------------------------|--------------------------|----------------------------------|------------------------|--------------------|------------------------|--------------------|---|--------------------|-------------------------------|--------------------|--|
| Industry Sector | Facilities Inspected | Total Inspections | Total Enforcement Actions | Clean Air Act | | Clean Water Act | | Resource Conservation and Recovery Act | | FIFRA/TSCA/EPCRA/Other | | |
| | | | | % of Total Inspections | % of Total Actions | % of Total Inspections | % of Total Actions | % of Total Inspections | % of Total Actions | % of Total Inspections | % of Total Actions | |
| Pulp and Paper | 265 | 3,766 | 502 | 51% | 48% | 38% | 30% | 9% | 18% | 2% | 3% | |
| Printing | 1,035 | 4,723 | 514 | 49% | 31% | 6% | 3% | 43% | 62% | 2% | 4% | |
| Inorganic Chemicals | 298 | 3,034 | 402 | 29% | 26% | 29% | 17% | 39% | 53% | 3% | 4% | |
| Organic Chemicals | 316 | 3,864 | 726 | 33% | 30% | 16% | 21% | 46% | 44% | 5% | 5% | |
| Petroleum Refining | 145 | 3,237 | 797 | 44% | 32% | 19% | 12% | 35% | 52% | 2% | 5% | |
| Iron and Steel | 275 | 3,555 | 499 | 32% | 20% | 30% | 18% | 37% | 58% | 2% | 5% | |
| Dry Cleaning | 245 | 633 | 103 | 15% | 1% | 3% | 4% | 83% | 93% | 0% | 1% | |
| Metal Mining | 339 | 1,519 | 155 | 35% | 17% | 57% | 60% | 6% | 14% | 1% | 9% | |
| Non-metallic Mineral Mining | 631 | 3,422 | 192 | 65% | 46% | 31% | 24% | 3% | 27% | 0% | 4% | |
| Lumber and Wood | 301 | 1,891 | 232 | 31% | 21% | 8% | 7% | 59% | 67% | 2% | 5% | |
| Furniture | 293 | 1,534 | 91 | 52% | 27% | 1% | 1% | 45% | 64% | 1% | 8% | |
| Rubber and Plastic | 739 | 3,386 | 391 | 39% | 15% | 13% | 7% | 44% | 68% | 3% | 10% | |
| Stone, Clay, and Glass | 268 | 2,475 | 301 | 45% | 39% | 15% | 5% | 39% | 51% | 2% | 5% | |
| Nonferrous Metals | 474 | 3,097 | 470 | 36% | 22% | 22% | 13% | 38% | 54% | 4% | 10% | |
| Fabricated Metal | 1,340 | 5,509 | 840 | 25% | 11% | 15% | 6% | 56% | 76% | 4% | 7% | |
| Electronics | 222 | 777 | 212 | 16% | 2% | 14% | 3% | 66% | 90% | 3% | 5% | |
| Automobiles | 390 | 2,216 | 240 | 35% | 15% | 9% | 4% | 54% | 75% | 2% | 6% | |

| Exhibit 35: One-Year Inspection and Enforcement Summary by Statute for Selected Industries | | | | | | | | | | | |
|--|----------------------|-------------------|---------------------------|------------------------|--------------------|------------------------|--------------------|--|--------------------|------------------------|--------------------|
| Industry Sector | Facilities Inspected | Total Inspections | Total Enforcement Actions | Clean Air Act | | Clean Water Act | | Resource Conservation and Recovery Act | | FIFRA/TSCA/EPCRA/Other | |
| | | | | % of Total Inspections | % of Total Actions | % of Total Inspections | % of Total Actions | % of Total Inspections | % of Total Actions | % of Total Inspections | % of Total Actions |
| Pulp and Paper | 189 | 576 | 88 | 56% | 69% | 35% | 21% | 10% | 7% | 0% | 3% |
| Printing | 397 | 676 | 72 | 50% | 27% | 5% | 3% | 44% | 66% | 0% | 4% |
| Inorganic Chemicals | 158 | 427 | 49 | 26% | 38% | 29% | 21% | 45% | 36% | 0% | 6% |
| Organic Chemicals | 195 | 545 | 118 | 36% | 34% | 13% | 16% | 50% | 49% | 1% | 1% |
| Petroleum Refining | 109 | 437 | 114 | 50% | 31% | 19% | 16% | 30% | 47% | 1% | 6% |
| Iron and Steel | 167 | 488 | 46 | 29% | 18% | 35% | 26% | 36% | 50% | 0% | 6% |
| Dry Cleaning | 80 | 111 | 11 | 21% | 4% | 1% | 22% | 78% | 67% | 0% | 7% |
| Metal Mining | 114 | 194 | 24 | 47% | 42% | 43% | 34% | 10% | 6% | 0% | 19% |
| Non-metallic Mineral Mining | 253 | 425 | 54 | 69% | 58% | 26% | 16% | 5% | 16% | 0% | 11% |
| Lumber and Wood | 142 | 268 | 42 | 29% | 20% | 8% | 13% | 63% | 61% | 0% | 6% |
| Furniture | 293 | 160 | 5 | 58% | 67% | 1% | 10% | 41% | 10% | 0% | 13% |
| Rubber and Plastic | 271 | 435 | 59 | 39% | 14% | 14% | 4% | 46% | 71% | 1% | 11% |
| Stone, Clay, and Glass | 146 | 330 | 66 | 45% | 52% | 18% | 8% | 38% | 37% | 0% | 3% |
| Nonferrous Metals | 202 | 402 | 72 | 33% | 24% | 21% | 3% | 44% | 69% | 1% | 4% |
| Fabricated Metal | 477 | 746 | 114 | 25% | 14% | 14% | 8% | 61% | 77% | 0% | 2% |
| Electronics | 60 | 87 | 21 | 17% | 2% | 14% | 7% | 69% | 87% | 0% | 4% |
| Automobiles | 169 | 284 | 28 | 34% | 16% | 10% | 9% | 56% | 69% | 1% | 6% |

VII.C. Review of Major Legal Actions

This section provides summary information about major cases that have affected this sector, and a list of Supplementary Environmental Projects (SEPs). SEPs are compliance agreements that reduce a facility's stipulated penalty in return for an environmental project that exceeds the value of the reduction. Often, these projects fund pollution prevention activities that can significantly reduce the future pollutant loadings of a facility.

This section discusses major legal cases and pending litigation within the pulp and paper industry as well as supplemental environmental projects (SEPs) involving pulp and paper facilities. Information regarding major cases or pending litigation is available from the Office of Regulatory Enforcement. Four SEPs are reviewed.

VII.C.1. Review of Major Cases

The Office of Regulatory Enforcement does not regularly compile information related to major cases and pending litigation within an industry sector. The staff are willing to pass along such information to Agency staff as requests are made. (Contact: Pete Rosenberg 202-260-8869) In addition, summaries of completed enforcement actions are published each fiscal year in the *Enforcement Accomplishments Report*; the summaries are not organized by industry sector. (Contact: Robert Banks 202-260-8296)

EPA has entered into several consent decrees with public interest groups but no significant litigation pending with the regulated community were identified. Earlier lawsuits (e.g., *Weyerhaeuser Company, et al. v. Costle*, 590 F. 2nd 1011) concerned applicability of effluent guidelines promulgated in 1974 and 1977. With one exception, the rules were upheld and have been superseded by later rules. The agency is now in the midst of an integrated rulemaking for the pulp and paper industry, the predominant regulations being effluent guidelines and a NESHAP.

A recent report identifies a case where a bleached Kraft paper mill's pollution prevention project, negotiated as part of an enforcement action, provided injunctive relief. That is, the project itself was the means of correcting the existing violation. This differs from supplemental environmental projects (discussed below) which are incidental to the correction of the violation.

The facility faced a \$2.9 million fine for violating NPDES permit limits for chronic toxicity. While the fine was not reduced, the company

investigated and adopted a totally chlorine-free (TCF) bleaching process which eliminated the use of chlorine and required some process modifications. Under a consent decree to complete the project by 1995, they will use hydrogen peroxide and oxygen for bleaching pulp and have added anthraquinone to the digester to increase lignin removal prior to bleaching. Production costs are expected to be higher and the pulp is not up to the product specifications of commodity-grade market pulp, according to industry sources.³⁰

Among the benefits accruing to the company were: reduced health and safety hazards associated with handling and storing chlorine and chlorine dioxide which are highly reactive, reduced costs of plant upkeep associated with the corrosive nature of chlorine, improved community relations. A key factor in selecting this project are the possible competitive advantages in domestic and European markets where demand for TCF pulp exists and is growing. This was the first commercial application of the process technology in the U.S. and there is also the potential to license the technology to other U.S. pulp mills.

VII.C.2. Supplementary Environmental Projects

Supplemental environmental projects (SEPs) are negotiated environmental projects, of which a fraction of the costs may be applied to a facility's original fine amount. Regional summaries of SEPs actions undertaken in the 1993 -1994 federal fiscal years were reviewed. Three SEPs in FY93 and no SEPs in FY94 involved pulp and paper manufacturing facilities, as shown in the following table.

Two of the three SEPs were associated with CERCLA violations, one was associated with EPCRA violations (one facility was subject to both). The specifics of the original violations are not known although some summaries noted the specific sections of the statute violation. As is typical across industry sectors, the cost of two of the pulp and paper SEPs was less than one half the original fine amount. In one case, however, the cost of the SEP to the company exceeded the original fine amount by three- to ten-fold.

All of the SEPs were done in Region IV -- an area with significant pulping and papermaking facilities. The SEPs fall into three categories:

- **Non-process related projects:** Two of the three SEPs involved projects not directly related to the pulp and paper manufacturing processes or its outputs. These projects involved contributions of equipment and/or funds

to Local Emergency Planning Committees (LEPCs). The cost to the companies of these SEPs ranged from \$6,000 to \$9,656.

- **Control and recovery technology installation:** One of the three SEPs involved installation of technological controls to minimize releases to the environment (from spills) and to increase on-site recycling of process chemicals. The project entailed construction of a spill containment and a process chemical recycling system. The cost to company totaled \$765,000, the highest of all projects within the sector.

- **Process change:** One facility switched bleaching chemicals, eliminating the use of molecular chlorine (a more difficult to handle and hazardous form) from the manufacturing process. Specifically, the bleaching process will now be based on bleaching pulp using sodium hypochlorite. The cost to company of this process change totaled \$72,000.

| Exhibit 36: FY-1993-1994 Supplemental Environmental Projects Overview: Pulp and Paper Manufacture | | | | | | | | | | | |
|--|-----------|-----------------------------|--------------|--------------------------|-----------------|---------------|------------|---------------------|---------------------------|--|---|
| General Information | | | | Violation Information | | | | | | Supplemental Environmental Project Description | |
| FY | Docket # | Company Name | State/Region | Type | Initial Penalty | Final Penalty | SEP Credit | SEP Cost to Company | Pollutant of Concern | Pollutant Reduction | |
| 93 | 6-92-0313 | Georgia Pacific | LA | CERCLA 103(a) | \$25,000 | \$5,000 | --- | \$6,000 | --- | --- | Donated emergency and/or computer equipment to LEPC for response/planning for chemical emergencies |
| 93 | --- | Southern Cellulose Products | Reg. 4 | EPCRA 312 | \$24,000 | \$1,800 | --- | \$72,000 | Chlorine | Eliminated Cl inputs | Changed bleaching process chemical from chlorine to sodium hypochlorite |
| 93 | --- | Jefferson Smurfit Corp. | Reg. 4 | CERCLA 103/EPCRA 304,312 | \$78,750 | \$16,000 | --- | \$765,000 | Caustic process chemicals | --- | Installed system for recycling and spill collection of paper process chemical and funds to county EMA for response training |
| Violation Information Terms Initial penalty: Initial proposed cash penalty for violation Final penalty: Total penalty after SEP negotiation SEP credit: Cash credit given for SEP so that, Final penalty - SEP credit = Final cash penalty SEP cost to company: Actual cost to company of SEP implementation NOTE: Due to differences in terminology and level of detail between regional SEP information, in some cases the figure listed as Final penalty may be the cash penalty after deduction for SEP credit | | | | | | | | | | | |

VIII. COMPLIANCE ACTIVITIES AND INITIATIVES

This section highlights the activities undertaken by this industry sector and public agencies to voluntarily improve the sector's environmental performance. These activities include those independently initiated by industrial trade associations. In this section, the notebook contains a listing and description of national and regional trade associations.

VIII.A. EPA Voluntary Programs

33/50 Program

The "33/50 Program" is EPA's voluntary program to reduce toxic chemical releases and transfers of seventeen chemicals from manufacturing facilities. Participating companies pledge to reduce their toxic chemical releases and transfers by 33 percent as of 1992 and by 50 percent as of 1995 from the 1988 baseline year. Certificates of Appreciation have been given out to participants meeting their 1992 goals. The list of chemicals includes seventeen high-use chemicals reported in the Toxics Release Inventory. Exhibit 37 lists those companies participating in the 33/50 program that reported the SIC code 261 through 265 to TRI. Many of the companies shown listed multiple SIC codes and, therefore, are likely to carry out operations in addition to pulp and paper manufacturing. The SIC codes reported by each company are listed in no particular order. In addition, the number of facilities within each company that are participating in the 33/50 program and that report SIC 261 through 265 to TRI is shown. Finally, each company's total 1993 releases and transfers of 33/50 chemicals and the percent reduction in these chemicals since 1988 are presented.

The pulp and paper industry as a whole used, generated or processed eight target TRI chemicals. Of the target chemicals, chloroform, methyl ethyl ketone, and toluene are released and transferred most by quantity. Chloroform is released in the greatest quantity overall; chloroform releases are almost ten times that of methylethyl ketone, the next largest release quantity. These two chemicals account for approximately 65 percent of 33/50 chemical releases and transfers from pulp and paper facilities and six percent of all of the industry's TRI releases and transfers in 1993. Chloroform and methylethyl ketone are also released by greatest number of mills in comparison to the other 33/50 chemicals. Thirty one companies listed under SIC 261-265) are currently participating in the 33/50 program. They account for 13 percent of the 245 pulp and paper companies under SIC 261-265 which is slightly lower than the average for all industries of

14 percent participation. (Contact: Mike Burns 202-260-6394; or the 33/50 Program 202-260-6907.)

Exhibit 37: 33/50 Program Participants Reporting SIC 261 through 265 (Pulp and Paper)

| Name of Parent Company | City, State | SIC Codes Reported | Number of Participating Facilities | 1993 Releases and Transfers (lbs) | % Reduction 1988 to 1993 |
|--|----------------------|--------------------|------------------------------------|-----------------------------------|--------------------------|
| Boise Cascade Corporation | Boise, ID | 2611, 2621 | 6 | 866,153 | 50 |
| Bomarko Inc. | Plymouth, IN | 2621, 2671, 2679 | 1 | 12,000 | 19 |
| Bowater Incorporated | Greenville, SC | 2611, 2621 | 2 | 238,409 | 30 |
| Champion International Corp. | Stamford, CT | 2621 | 6 | 1,356,355 | 49 |
| Consolidated Papers Inc. | Wisconsin Rapids, WI | 2611, 2621 | 2 | 252,940 | 33 |
| Federal Paper Board Company | Montvale, NJ | 2631 | 2 | 1,197,941 | 50 |
| Fletcher Paper Company | Alpena, MI | 2621 | 1 | 1,001,714 | *** |
| Fort Howard Corporation | Green Bay, WI | 2621 | 3 | 381,712 | 50 |
| Georgia-Pacific Corporation | Atlanta, GA | 2611 | 13 | 2,722,182 | 50 |
| Green Bay Packaging Inc. | Green Bay, WI | 2631 | 1 | 4,730 | 50 |
| H Enterprises Intl. | Minneapolis, MN | 2657, 2631 | 1 | 164,345 | 47 |
| International Paper Company | Purchase, NY | 2631 | 13 | 2,784,831 | 50 |
| ITT Corporation | New York, NY | 2611 | 3 | 735,332 | 7 |
| James River Corp Virginia | Richmond, VA | 2621 | 7 | 961,588 | 53 |
| Kimberly-Clark Corporation | Irving, TX | 2621, 2611 | 2 | 488,160 | 50 |
| Louisiana-Pacific Corporation | Portland, OR | 2611 | 1 | 294,823 | 50 |
| Mead Corporation | Dayton, OH | 2631 | 4 | 163,512 | * |
| Parsons & Whittemore Entps. | Port Chester, NY | 2611, 2621 | 1 | 149,405 | * |
| Potlatch Corporation | San Francisco, CA | 2631 | 3 | 276,643 | 60 |
| Procter & Gamble Company | Cincinnati, OH | 2611, 2621, 2676 | 3 | 612,520 | * |
| Riverwood International USA | Atlanta, GA | 2631 | 2 | 70,161 | 50 |
| Scott Paper Company | Philadelphia, PA | 2611, 2621 | 6 | 1,288,876 | 50 |
| Sibv/Ms Holdings Inc. | Saint Louis, MO | 2631 | 3 | 721,549 | *** |
| Simpson Investment Company | Seattle, WA | 2611, 2621 | 3 | 749,525 | 50 |
| Sonoco Products Company | Hartsville, SC | 2631, 2655 | 1 | 621,380 | 1 |
| Temple-Inland Inc. | Diboll, TX | 2631 | 3 | 166,410 | 50 |
| Tenneco Inc. | Houston, TX | 2631 | 3 | 1,272,423 | 8 |
| Union Camp Corporation | Wayne, NJ | 2621 | 4 | 835,696 | 50 |
| Westvaco Corporation | New York, NY | 2621 | 4 | 877,866 | 50 |
| Weyerhaeuser Company | Tacoma, WA | 2611, 2621, 2631 | 5 | 1,006,356 | * |
| Willamette Industries Inc. | Portland, OR | 2611, 2621 | 3 | 677,090 | 34 |
| * = not quantifiable against 1988 data. ** = use reduction goal only. *** = no numerical goal. | | | | | |

| |
|---|
| Source: U.S. EPA, Toxics Release Inventory, 1993. |
|---|

Environmental Leadership Program

The Environmental Leadership Program (ELP) is a national initiative piloted by EPA and state agencies in which facilities have volunteered to demonstrate innovative approaches to environmental management and compliance. EPA has selected 12 pilot projects out of 40 applicants at industrial facilities and federal installations which will demonstrate the principles of the ELP program. In return for participating, pilot participants receive public recognition and are given a period of time to correct any violations discovered during these experimental projects. The information collected from the pilot ELP programs will be used to develop a full-scale ELP program. Two pulp and paper companies (Simpson Tacoma Kraft Company of Tacoma, WA and International Paper of Mansfield, LA) submitted proposals. The Simpson Tacoma Kraft Company was selected to participate in the pilot program. The company is an integrated pulp and paper mill employing 560 that produces natural and bleached pulp, kraft paper, and bleached kraft paper used primarily in the production of food and industrial grade packaging products. Their proposal included 1) mechanism to share audit information and conduct self-audits, 2) development of incentives for company to go beyond compliance, 3) development of a new approach to measure beyond compliance and pollution prevention efforts, and 4) implementation of an "Adopt a Supplier" program. (Contact: Maria Eisemann, (202) 564-7016, fax (202) 564-0050). Other proposals are available for review from the Environmental Leadership Program.(Contact: Tai-ming Chang, ELP Director, 202-564-5081 or Robert Fentress 202-564-7023.).

Project XL

Project XL was initiated in March 1995 as a part of President Clinton's *Reinventing Environmental Regulation* initiative. The projects seek to achieve cost effective environmental benefits by allowing participants to replace or modify existing regulatory requirements on the condition that they produce greater environmental benefits. EPA and program participants will negotiate and sign a Final Project Agreement, detailing specific objectives that the regulated entity shall satisfy. In exchange, EPA will allow the participant a certain degree of regulatory flexibility and may seek changes in underlying regulations or statutes. Participants are encouraged to seek stakeholder support from local governments, businesses, and environmental groups. EPA hopes to implement fifty pilot projects in four categories including facilities, sectors, communities, and

government agencies regulated by EPA. Applications will be accepted on a rolling basis and projects will move to implementation within six months of their selection. For additional information regarding XL Projects, including application procedures and criteria, see the May 23, 1995 Federal Register Notice, or contact Jon Kessler at EPA's Office of Policy Analysis (202) 260-4034.

Green Lights Program

EPA's Green Lights program was initiated in 1991 and has the goal of preventing pollution by encouraging U.S. institutions to use energy-efficient lighting technologies. The program has over 1,500 participants which include major corporations; small and medium sized businesses; federal, state and local governments; non-profit groups; schools; universities; and health care facilities. Each participant is required to survey their facilities and upgrade lighting wherever it is profitable. EPA provides technical assistance to the participants through a decision support software package, workshops and manuals, and a financing registry. EPA's Office of Air and Radiation is responsible for operating the Green Lights Program. (Contact: Maria Tikoff 202-233-9178 or the Green Light/Energy Star Hotline at 202-775-6650)

WasteWi\$e Program

The WasteWi\$e Program was started in 1994 by EPA's Office of Solid Waste and Emergency Response. The program is aimed at reducing municipal solid wastes by promoting waste minimization, recycling collection and the manufacturing and purchase of recycled products. As of 1994, the program had about 300 companies as members, including a number of major corporations. Members agree to identify and implement actions to reduce their solid wastes and must provide EPA with their waste reduction goals along with yearly progress reports. EPA in turn provides technical assistance to member companies and allows the use of the WasteWi\$e logo for promotional purposes. The pulp and paper company Georgia-Pacific is a WasteWi\$e participant. (Contact: Lynda Wynn 202-260-0700 or the WasteWi\$e Hotline at 800-372-9473)

Climate Wise Recognition Program

The Climate Change Action Plan was initiated in response to the U.S. commitment to reduce greenhouse gas emissions in accordance with the Climate Change Convention of the 1990 Earth Summit. As part of the Climate Change Action Plan, the Climate Wise Recognition Program is a

partnership initiative run jointly by EPA and the Department of Energy. The program is designed to reduce greenhouse gas emissions by encouraging reductions across all sectors of the economy, encouraging participation in the full range of Climate Change Action Plan initiatives, and fostering innovation. Participants in the program are required to identify and commit to actions that reduce greenhouse gas emissions. The program, in turn, gives organizations early recognition for their reduction commitments; provides technical assistance through consulting services, workshops, and guides; and provides access to the program's centralized information system. Currently, the pulp and paper company Georgia-Pacific is a Climate Wise participant. At EPA, the program is operated by the Air and Energy Policy Division within the Office of Policy Planning and Evaluation. (Contact: Pamela Herman 202-260-4407)

NICE³

The U.S. Department of Energy and EPA's Office of Pollution Prevention are jointly administering a grant program called The National Industrial Competitiveness through Energy, Environment, and Economics (NICE³). By providing grants of up to 50 percent of the total project cost, the program encourages industry to reduce industrial waste at its source and become more energy-efficient and cost-competitive through waste minimization efforts. Grants are used by industry to design, test, demonstrate, and assess the feasibility of new processes and/or equipment with the potential to reduce pollution and increase energy efficiency. The program is open to all industries; however, priority is given to proposals from participants in the pulp and paper, chemicals, primary metals, and petroleum and coal products sectors. A project with a pulp and paper facility in California focused on increasing the amount of post consumer waste (PCW) used in the production of the paper pallets used for freight transport. The company, Damage Protection Products, will develop a 40 percent PCW pallet product and demonstrate continuous production for 5 days. Every ton of PCW that is substituted for wood fiber in this process decreases water use by 50 percent, energy use by 60 percent, reduces wastewater production by 35 percent and air pollution by 74 percent. (Contact: Bill Ives, DOE's Golden Field Office, 303-275-4755).

State and Local initiatives

| Exhibit 38: Contacts for State and Local Initiatives | | | |
|---|--|----------------------------------|-----------------------------------|
| State | Program | Contact | Telephone |
| Alabama | AL Dept. of Env. Management, Ombudsman and Small Business Assistance | Blake Roper, Michael Sherman | (800) 533-2336 (205) 271-7861 |
| | AL WRATT Foundation | Roy Nicholson | (205) 386-3633 |
| California | County Sanitation Districts of LA | Mischelle Mische | (310) 699-7411 |
| Colorado | Region VIII HW Minimization Program | Marie Zanowich | (303) 294-1065 |
| Florida | FL Dept. of Env. Protection, Small Business Assistance Program | Joe Schlessel | (904) 488-1344 |
| Indiana | IN Dept. of Env. Mgmt. | Tom Neltner | (317) 232-8172 |
| Iowa | IA Dept. of Natural Resources | Larry Gibson | (515) 281-8941 |
| Kentucky | KY Partners, State Waste Reduction Center | Joyce St. Clair | (502) 852-7260 |
| Maine | ME Dept. of Env. Protection | Ronald Dyer | (207) 287-2811 |
| | ME Waste Mgmt. Agency | Gayle Briggs | (207) 287-5300 |
| Massachusetts | Northeast States Pollution Prevention Roundtable, Northeast Waste Management Officials' Association (NEWMOA) | Terri Goldberg | (617) 367-8558 |
| | Toxics Use Reduction Institute | Janet Clark | (508) 934-3346 |
| Michigan | University of Detroit Mercy | Daniel Klempner | (313) 993-3385 |
| New Hampshire | NH Small Business Technical and Env. Compliance Assistance Program | Rudolph Cartier Jr. | (603) 271-1370 |
| New Jersey | NJ Technical Assistance Program for Industrial Pollution Prevention (NJTAP) | Kevin Gashlin | (201) 596-5864 |
| New Mexico | Waste Management Education and Research Consortium | Ron Bhada | (505) 646-1510 |
| North Carolina | NC State University | Michael Overcash | (919) 515-2325 |
| Ohio | Institute of Advanced Manufacturing Sciences | Harry Stone, Sally Clement | (513) 948-2050 |
| Oregon | OR Dept. of Env. Quality, Air Quality Small Business Assistance Program | John MacKellar Terry Obteshka | (503) 229-6828, (503) 229-5946 |
| Rhode Island | RI Center for P2, URI | Stanley Barnett | (401) 792-2443 |

| Exhibit 38: Contacts for State and Local Initiatives | | | |
|---|--|------------------------------|-----------------------------------|
| State | Program | Contact | Telephone |
| South Carolina | Southeast Manufacturing Technology Center (SMTC) | Jim Bishop | (803) 252-6976 |
| Washington | WA State Dept. of Ecology | Peggy Morgan | (206) 407-6705 |
| West Virginia | WV Div. of Env. Protection, Office of Water Resources, P2 Services | Barbara Taylor | (304) 256-6850 |
| Wisconsin | WI Dept. of Development, Small Business Assistance | Dennis Leong, Phil Albert | (608) 266-9869, (608) 266-3075 |

VIII.B. Trade Association/Industry Sponsored Activities

VIII.B.1. Environmental Programs

Global Environmental Management Initiative

The Global Environmental Management Initiative (GEMI) is made up of group of leading companies dedicated to fostering environmental excellence by business. GEMI promotes a worldwide business ethic for environmental management and sustainable development, to improve the environmental performance of business through example and leadership. In 1994, GEMI's membership consisted of about 30 major corporations such as the pulp and paper company Georgia-Pacific.

50% Paper Recovery: A New Goal for a New Century

The membership of the American Forest and Paper Association (AF&PA) set a goal to recover for recycling 50 percent of all paper used by Americans by the year 2000. This program succeeds a voluntary program to reach a 40 percent paper recovery rate by 1995. These recovery rates were achieved in 1993, according to industry sources.

Annual Sustainable Forestry Report

In 1994, the AF&PA put a sustainable forestry initiative in place that includes an annual report from each of its members on sustainable forestry practices and accomplishments.

104 Mill Study

The pulp and paper industry participated voluntarily in the *Five Mill Study* conducted in 1986 and in the *104 Mill Study* in 1988. In 1992, API (now American Forest and Paper Association) and the National Council of the Paper Industry for Air and Stream Improvement (NCASI) surveyed 124 chemical pulping facilities to determine baseline controls and components of the MACT regulatory floor.

VIII.B.2. Summary of Trade Associations

The trade and professional organizations serving the pulp and paper industry are lead by the American Forest and Paper Association (AFPA), formerly the American Paper Institute (API). They have been actively involved in a number of recent rulemakings (under CAA, CWA and RCRA) which will affect their members. The National Council of the Paper Industry for Air and Stream Improvement (NCASI) does technical research for the industry. The Technical Association of the Pulp and Paper Industry (TAPPI), is a technical clearinghouse for the industry; they disseminate technical information to production facility staff throughout the U.S.

American Forest and Paper Association

1111 19th Street, NW
Suite 210
Washington, DC 20036
Phone: (202) 463-2700
Fax: (202) 463-2423

Members: 450
Staff: 140
Contact: Josephine Cooper,
V.P. for Environment and
Regulatory Affairs

The National Forest Products Association merged with the American Paper Institute (API) in 1993 to become the American Forest and Paper Association (AF&PA). AF&PA is the national trade association for the forest, pulp, paper, paperboard, and wood products industry. The organization focuses on information gathering/dissemination, research on industry technical issues, and represents the industry in regulatory and legislative matters. The AF&PA takes an active role by representing its members before governmental agencies, such as on the recent integrated air and water rule. Some current environmental initiatives include the 2020 Research Agenda, 50 percent recycling goal, and the AF&PA Environmental, Health and Safety Principles. The AF&PA publishes a variety of documents for and about its membership. Some relevant publications include the annual industry wide reviews *Capacity Report* and *Statistics of Paper, Paperboard, and Wood Pulp* the *Paper, Paperboard, and Wood Pulp Monthly Statistical Summary* and the *Dictionary of Paper*,

published every ten years. Circulation for these publications is listed at 1,000. The AFPA holds an annual meeting every March in New York City.

National Council of the Paper Industry
for Air and Stream Improvement
260 Madison Ave.
New York, NY 10016
Phone: (212) 532-
9000
Fax: (212) 779-2849

Members: 100
Staff: 90
Budget: \$10,000,000
Contact: Dr. Ronald Yeske

Founded in 1943, the National Council of the Paper Industry for Air and Stream Improvement (NCASI) presently conducts research on environmental problems related to industrial forestry and the manufacture of pulp, paper, and wood products. NCASI produces technical documents on environmental issues facing the pulp and paper industry and conducts industry conferences. Publications include: a biweekly bulletin on general issues and a variety of technical bulletins (40/year). NCASI also holds an annual March convention in New York city.

TAPPI
T e c h n o l o g y
Park/Atlanta
P.O. Box 105113
Atlanta, GA 30348
Phone:(404) 446-1400
Fax: (404) 446-6947

Members: 33,000
Staff: 95
Budget: \$13,000,000
Contact: Charles Bohanan
Technical Divisions Operator

The Technical Association of the Pulp and Paper Industry (TAPPI) represents executives, managers, engineers, research scientists, superintendents, and technologists in the pulp, packaging, paper, and allied industries. Founded in 1915, TAPPI is split into eleven divisions, which include: environmental, research and development, paper and board manufacture, and pulp manufacture. Though its headquarters are in Atlanta, TAPPI is also divided into 27 regional groups. Overall, TAPPI provides a variety of services to its members. TAPPI conducts conferences on topics such as forest biology, environment, packaging, pulp manufacture, and R&D in addition to a more general annual conference. TAPPI also develops testing methodologies for process control and laboratory analysis. The main annual project of the TAPPI Environmental division consists of an environmental issues industry conference. In 1995, TAPPI launched a campaign to educate the public on industry environmental facts. TAPPI publications include an annual *Membership Directory*, a monthly *TAPPI Journal*, and the publication of research

results. TAPPI's publications are available via an online catalogue and record retrieval system called TAPPI-net available at (800) 332-8686.

Paper Industry Management Association

2400 E. Oakton St.

Arlington Heights, IL 60005

Phone: (708) 956-0250

Fax: (708) 956-0520

Members: 5,000

Staff: 14

Budget: \$2,000,000

Contact: George J. Calimafde

The Paper Industry Management Association, or PIMA, is a professional organization of pulp, paper mill, and paper converting production executives. The association has provided management oriented information to its membership since 1919. This association goal is embodied by their publications: an annual *Handbook* of the industry, a monthly *PIMA Magazine* dedicated to improving efficiency and productivity, and the annual *PIMA Pulp and Paper Mill Catalog* reference for industry management. This catalog contains information regarding equipment, raw materials, and chemical products, in addition to a trade name directory, a listing of manufacturers and suppliers, and a listing of reports relevant to pulp and paper manufacture.

IX. CONTACTS/ACKNOWLEDGMENTS/RESOURCE MATERIALS/BIBLIOGRAPHY

For further information on selected topics within the pulp and paper industry a list of publications and contacts are provided below:

Contacts^g

| Name | Organization | Telephone | Subject |
|--------------------------------|---|--------------|---|
| Maria Eisemann | U.S. EPA, Office of Compliance | 202-564-7016 | Pulp and paper industry sector lead; pulp and paper ELP project information |
| Donald Anderson | OSWER | 202-260-4796 | Solid waste |
| Pamela Herman | U.S. EPA Air and Energy Policy Division | 202-260-4407 | <i>Climate Wise Program</i> |
| Penny Lassiter | U.S. EPA | 919-541-5396 | Clean Water Act |
| Debra Nicoll | OW, ESAB | 202-260-5385 | State statutes relevant to pulp and paper industry |
| Cindy Evans | American Forest and Paper Association | 202-463-2582 | Industry Statistics |
| Gary Stanley | Department of Commerce, Office of Machinery, Materials and Chemicals | 202-482-0375 | Finance, international and domestic markets, and production |
| Reid Miner Program Director | National Council of the Paper Industry for Air and Stream Improvement, Inc. | 212-532-9349 | Industry Technical Information |

^g Many of the contacts listed above have provided valuable background information and comments during the development of this document. EPA appreciates this support and acknowledges that the individuals listed do not necessarily endorse all statements made within this notebook.

General Profile

U.S. Industrial Outlook 1994 Department of Commerce

API, 1992, *Statistics of Paper, Paperboard, & Wood Pulp*

Lockwood-Post's Directory of the Pulp and Paper and Allied Trade 1995.

Institute of Paper Science and Technology on-line environmental abstracts.

Process Descriptions and Chemical Use Profiles

Richard J. Albert, "Effluent-Free Pulp Mill Possible with Existing Fiberline Equipment," *Pulp & Paper*, 68(7), July 1994, pp. 83-89.

American Paper Institute. *Report on the Use of Pulping and Bleaching Chemicals in the U.S P&P Industry*, June 26, 1992.

Lee Brunner and Terry Pulliam, "Comprehensive Impact Analysis of Future Environmentally Driven Pulping and Bleaching Technologies," 1992 TAPPI *Pulping Conference*, Boston, MA.

David Forbes, "Mills Prepare for Next Century with New Pulping, Bleaching Technologies," *Pulp & Paper*, Sept. '92.

Smook, G.A. *Handbook for Pulp & Paper Technologists* Second edition. Vancouver: Angus Wilde Publications, 1992.

Regulatory Profile

Federal Register, Proposed Rules, Friday December 17, 1993, Part II pp. 66078-66216.

Penny Lassiter
Office of Air Quality Planning and Standards
(919) 541-5396

Donald Anderson
Office of Water
(202) 260-7137

David Carver
Office of Solid Waste

(202) 260-6775

Pollution Prevention

Pollution Prevention Technologies for the Bleached Kraft Segment of the U.S. Pulp and Paper Industry, EPA/600/R-93/110

Chlorine-Free Bleaching of Kraft Pulp: Feasibility Study, sponsored by Domtar Inc., the Ontario Ministry of the Environment, and Environment Canada, June 1993. Available from Great Lakes Pollution Prevention Centre (519) 337-3423.

Neil McCubbin, *Costs and Benefits of Various Pollution Prevention Technologies in the Kraft Pulp Industry*, EPA-744R-93-002.

Howard Deal, "Environmental Pressure Causes Changes in Bleaching Technologies, Chemicals," *Pulp & Paper*, Nov. '91.

Bruce Fleming, *Alternative and Emerging Non-Kraft Pulping Technologies*, EPA-744R-93-002.

NCASI Technical Workshop-- *Effects of Alternative Pulping and Bleaching Processes on Production and Biotreatability of Chlorinated Organics*, NCASI Special Report No. 94-01, Feb. 1994.

Supplemental Environmental Projects

Monica Becker, Nicholas Ashford, *Recent Experience in Encouraging the Use of Pollution Prevention in Enforcement Settlements*, Final Report, MIT, May 1994.

Monica Becker, Nicholas Ashford, *Encouraging the Use of Pollution Prevention in Enforcement Settlements: A Handbook for EPA Regions*, MIT, May 1994.

Trade Journals

American Papermaker (404) 325-9153

Board Converting News and Recycling Market (202) 368-1225

Non Wovens Industry (201) 825-2552

Official Boards Markets (312) 938-2300

Paper Age (202) 666-2262

Paperboard Packaging (800) 225-4569

Pulp and Paper (415) 905-2200

Pulp and Paper International (415) 905-2200

Recycled Paper News (703) 750-1158

TAPPI Journal(404) 446-1400

Resource Materials

Supporting documents for the currently proposed integrated rulemaking identify a number of research efforts and data source which were used by EPA to characterize the pulp and paper industry and its processes and their environmental consequences. A short summary of each is available in the Federal Register Notice (58 FR 66092). They include:

1990 Census of Pulp and Paper Mills- Used §308 (CWA) survey to gather technical (e.g., existing processes, performance, releases) and financial information from 565 U.S. pulp and paper mills. Used as the primary information source for the integrated rulemaking. Queries about state and local regulatory requirements were included.

Swedish Studies - Summarizes a mid-1980s project to document the biological effects of mills wastes on Baltic Sea species.

National Dioxin Study - A 1987 EPA report unexpectedly found elevated levels of dioxin in fish tissues downstream from 57 percent of the pulp and paper mill sites sampled. Further investigations found dioxin in wastewater and wastewater treatment sludge from mills. Hypothesis made that chlorine bleaching process was the source.

Five Mill Study - Cooperative effort with industry to collect detailed process information including effluent sampling. Confirmed presence of dioxin in wastewaters, pulps, and sludge.

104 Mill Study - Follow-up to Five Mill Study to determine extent of dioxin formation by representative bleaching and production processes throughout the industry.

National Study of Chemical Residues in Fish- Confirmed the pulp and paper mills were dominant source of dioxins and furans in fish tissue.

Dioxin Risk Assessment- Results from the multiple pathway investigation are scheduled for publication in late 1994.

End Notes

1. USEPA. 1990 National Census of Pulp, Paper, and Paperboard Manufacturing Facilities. 1990.
2. American Forest and Paper Association, 1994 Statistics, Data Through 1993. Washington, D.C.:AF&PA, 1994.
3. American Forest and Paper Association, 1994 Statistics, Data Through 1993. Washington, D.C.:AF&PA, 1994.
4. U.S. EPA, 1993. Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Pulp, Paper, and Paperboard Category; National Emission Standards for Hazardous Air Pollutants for Source Category: Pulp and Paper Production. 40 CFR Parts 63 and 430.
5. *Pollution Prevention Technologies for the Bleached Kraft Segment of the U.S. Pulp and Paper Industry*, 1993, (EPA-600-R-93-110)
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8. U.S. Department of Commerce, U.S. Industrial Outlook: 1994. January, 1994.
9. American Forest & Paper Association. 1994.
10. USEPA. Development Document for Proposed Effluent Limitations Guidelines and Standards for the Pulp, Paper, and Paperboard Point Source Category. October 1993.
11. AF&PA, Improving Tomorrow's Environment Today. January 1995.
12. Office of Water, Personal Communication. June, 1995.
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25. U.S. EPA, 1993. Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Pulp, Paper, and Paperboard Category; National Emission Standards for Hazardous Air Pollutants for Source Category: Pulp and Paper Production. 40 CFR Parts 63 and 430.
26. *Pollution Prevention Technologies for the Bleached Kraft Segment of the U.S. Pulp and Paper Industry*, 1993, (EPA-600-R-93-110)
27. American Forest & Paper Association. 1994.
28. U.S. EPA. 104-Mill Study. 1988.
29. American Forest and Paper Association, 1994 Statistics, Data Through 1993. Washington, D.C.:AF&PA, 1994.
30. American Forest & Paper Association. 1994.

Appendix A- Instructions for Down Loading Notebooks

GPO Document Ordering Form (insert blank page)

Inside Back Cover (insert blank page)

Back cover will be provided by the EPA